

Towards Wholeness



**Vedanta - Science -
Swami Vivekananda**

*“Can you become an occidental of
occidentals in your spirit of equality,
freedom, work and energy, and at
the same time a Hindu to the very
backbone in religious culture and
instincts? This is to be done and we
will do it. You are all born to do it.*

*Have faith in yourselves; great
convictions are the mothers of great
deeds. Onwards for ever-sympathy
for the poor, the downtrodden, even
unto death; this is our motto.”*

—Swami Vivekananda

TOWARDS WHOLENESS

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PREFACE

Pandit Jawaharlal Nehru while writing about Swami Vivekananda in '*The Discovery of India*' observed, "Rooted in the past, and full of pride in India's heritage, Vivekananda was yet modern in his approach to life's problems, and was a kind of bridge between the past of India and her present." Today when we assess Swami Vivekananda's contribution we find that he was not only a bridge between the past and present of India but was also a bridge between science and religion. This he did through his extensive lectures through which he showed that a harmonious synthesis exists between these two diverse fields of knowledge.

It is common knowledge that religion deals with the metaphysical world where-

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as science deals with the physical world. Apparently there is a conflict between these two aspects of human life. However Swamiji pointed out that these two fields need not be seen as conflicting with each other. He showed how man can function harmoniously in both these fields with no conflicts, as one is complimentary to the other. He also showed that the study of the one in the light of the other is helpful and relevant for each of these fields.

We are happy to state that Sri TGK Murthy, Outstanding Scientist, Ex-Director, ISRO took personal interest in this venture of our sisters and has given introduction as well as conclusion.

The three essays in this booklet *Towards Wholeness* explain Swami Vivekananda's ideas on science and religion. We hope the readers will gain a deeper understanding of these two branches of knowledge.

Pravrajika Amalaprana
General Secretary

INTRODUCTION

To man the world is an enigma. As he looks around he wonders: What is this universe? What is its past, present and future? What is life? What is its purpose? From where, why and how has it come? On the other hand when he looks within he encounters another universe equally mysterious within with similar expressions. He is unable to relate himself to himself and himself to these internals and externals.

We may ask why he should seek answers to these questions, when he can choose to live his life without bothering about them. The truth is that everyone at sometime in his life encounters these questions about the mysteries of life. If he

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finds the answers, his approach to life may change for good. If however, he fails to reach the truth then as Kena Upanishad points out and as our great rishis have proclaimed, his loss is immense. Our ancient rishis were great researchers who had probed into the nature of man and his reality. They had experienced the diversity and dynamism of life through their senses, and had then applied their mind to acquire a better understanding of life and finally contemplated on it through meditation. Through their concentrated meditative investigation they merged themselves with the object of their meditation. In the process, intuitively they found that the governing principles behind what appeared as many and different was oneness. They found that these apparently distinct parts were actually connected. This resulted in the formation of the ancient Indian philosophy, the Vedanta. The study of Vedanta helps us to realize

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the oneness between the seen and the unseen, the expressible and the inexpressible, and we are able to get a comprehensive understanding of these mysteries of life.

Science, too is engaged with the mysteries of life. However, it attempts to provide answers related to the external universe through the approach of sense perception and reasoning. Through this approach, scientists too traverse towards the truth underlying these externals. They try to extrapolate their findings of the external universe to the workings of the internal universe. In their overall quest, they travel from the lower truth to the higher truth through continuous improvements in instruments that extend the capabilities of the senses. In this journey, they have even shifted from objective criteria to subjective ones and migrated towards the unification of the observer with the observed. The result is a

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search for a grand unification of different forces in the universe; a vision of a grand synthesis. But their quest has limitations because with the help of present day scientific tools only 95 percent of the external universe (energy, matter and life's secrets) can be comprehended.

Religion is yet another dimension of human endeavour in the quest for truth; and answers to the most fundamental questions about the origin, existence and destiny of human beings and the universe. Religion means realization and nothing else. For religion, how one approaches the truth is inconsequential. To give an analogy it does not matter, how a person reaches his final destination—in a four-horse carriage, or in an electric car, or by rolling on the ground. The goal is the same. Both scientific and Vedantic realities are embedded in religion. It attempts to see the inter-connectedness between the internal and the external experiences.

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According to Swami Vivekananda, the path of religion helps a man to become aware of what the reality is, and also to regain his lost understanding of the self.

The paths of science and religion though they appear to be disparate often leading to conflicting views many a time, have a common meeting ground. Swami Vivekananda who verily is an epitome of Vedanta captures these essence in the words, "*Science and religion will meet and shake hands. Poetry and philosophy will become friends. This will be the religion of the future, and if we can work it out, we may be sure that it will be for all times and peoples. This is the one way that will prove acceptable to modern science, for it has almost come to it.*" (*Complete works of Swami Vivekananda, Vol II, pg 140*). In the same vein, an equally gigantic but scientific personality Einstein said, "*Science without religion is lame. Religion without science is blind.*" Throwing further light on the issue, Swami

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Vivekananda pointed out, "*When the scientific teacher asserts that all things are the manifestation of one force, does it not remind you of the God of whom you hear in the Upanishads.... Do you not see whither science is tending? The Hindu nation proceeded through the study of the mind, through metaphysics and logic. The European nations start from external nature, and now they too are coming to the same results.*"

Thus, Vedanta, science and religion can be seen as interlocked knowledge-based systems. However, today, they seem to be antagonistic with each other; as a result, their relevance and validity to life are hotly debated. Whatever may be the debate, we should know how knowledge is gathered. For this knowledge-acquisition, from time immemorial man has used his own senses for information gathering and has applied his mind to comprehend them. The other associated knowledge gathering methods adopted by man are instinct, reason and

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intuition. While instinct is the basal form for gathering knowledge for all forms of life including man, reason appears to be accessible only to human mind. The intuition which is beyond sense perception is also a source of knowledge.

In the last 100 years, modern Science has captured the imagination of man because it has made great strides in making human life more comfortable. With its application man has been able to remove drudgery, to better his life and to enhance his comforts. Because of the materialistic advancement of his life through science, modern man has brushed aside the holistic knowledge gained through Vedanta, describing this knowledge as speculative and subjective. For many, religion is only a soothsayer that calls for blind faith and has no relevance to practical life. It is very difficult today, especially for the youth to demarcate Truth from comfortable truth. In the face of

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objective and rational application of tools of science he wonders whether the Vedantic approach providing a holistic outlook is relevant at all in today's world.

To elucidate this point, let us examine an analogy of parallelism between objective science and subjective Vedanta. For instance you ask a person, "Are you hungry?" And he answers, "Yes, I am famished; I have had no food for two days", As a scientist you will bring out all your instruments and tap him all over, record his reactions, make a lot of graphs and then come to the conclusion, that the man is indeed hungry and needs food. This is one way of knowing reality— the purely objective and scientific way of approaching at truth. The other way, the subjective way, is belief and faith. Hunger is not an alien experience for you. You have experienced it and you have been a part of it. So you can perceive truth by your inner knowledge combined with

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reason. So based on your experience and observation you conclude that the man is hungry. Swami Vivekananda, the great visionary, found the relevance of Vedanta to modern science and recognized the complementary connectedness between them.

He experienced it; he felt the unity of the external and internal universe and realized that man was an integral part of both. He adopted this comprehensive knowledge for understanding the external through his pre-scientific approach. He could see the all pervasive relevance of Vedanta and that's why he called the modern scientific findings, related to the external, as the echoes of Vedanta.

Vedanta is the essence of the Hindu religion. In fact it is the essence of every religion because it underlines the basic principles behind the external observances of all religions. Thus the theme of interconnectedness of Vedanta and Science as

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intuitively perceived by Swami Vivekananda offers us a unique fruit. Through this link we can find an amazing unity between the phenomenal objective and subjective worlds. This is the subject matter of this booklet. It is indeed a march 'Towards Wholeness'.

Swami Vivekananda, the beacon light, has set the tone of this book through his great explorations in the world of matter and spirit. He exhorts humanity to wake up responding to his clarion call and progress towards experiencing the wholeness.

Dr. T.G.K. Murthy

**SCIENCE AND RELIGION—
TWO PATHS, ONE QUES**

Pravrajika Divyanandaprana

SCIENCE AND RELIGION— TWO PATHS, ONE QUEST

In 1895, Swami Vivekananda while delivering a lecture said, "*In their enquiry into the principle, the Hindu thinkers were as bold, and in some cases, much bolder than the moderns. They made some of the grandest generalizations that have yet been reached, and some still remain as theories, which modern science has yet to get even as theories. For instance, they not only arrived at the ether theory, but went beyond and classified mind also as a still more rarefied ether (manas)... the Vedantist has proved beyond all doubt that the mind is limited, that it cannot go beyond certain limits—beyond time, space and causation. As no man can jump out of his own self, so no man can go beyond the limits that*

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have been put upon him by the laws of time and space."

Science and Religion are both magnificent products of the human mind. The Vedanta philosophy recognizes this fact and states that the ultimate goal of human life transcends the function of the mind. Science however gropes in the mazes of logic and reason—both again mental products—to find 'laws' that will explain the unlimited in the midst of the limited. Vedanta acknowledges the great prism of time, space and causation through which we view reality. Science presumes that it attempts to understand reality or Truth directly. But the common goal of both the fields is to search for Unity—whether it is called TOE (Theory of Everything) or Tao, God particle or God!

Two approaches — 'How' and 'Why'

Both the mighty streams of Science and Religion emerge from two distinct

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thinking patterns in the human brain. We may call them the 'How' and the 'Why' patterns. The same phenomenon gives one answer when shot with the 'How' arrow and gives another answer or perspective when shot with the 'Why' arrow.

Let us take an example from science to see how asking these two questions can change our perspective. Imagine the beautiful Himalayas. Now imagine that you are standing with your friend at dawn on a vast meadow surrounded by snow-peaks. The sun is just emerging, bathing the earth with its golden light. The peaks light up and shimmer. But the sky is overcast, a thundercloud emerges and soon there is a drizzle. Soon the sky clears up and a rainbow appears. The sheer beauty of the scenery would send poets and artists into raptures. Your friend, however, has a scientific bent of mind and so she asks, "How did this happen?" Her mind analyzes the

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rainbow—white light incident at an angle on rain drops, which serve as prisms, gets split into various frequencies of electromagnetic radiation. The emerging *vibgyor* is called a rainbow. So the white light splitting into its components is what catches her attention. The principles operating in her mind are:

1. Quantification—measurement of physical quantities, here white light,
2. Mechanism—the principle in operation, here reflection and refraction, the splitting of white light, and
3. Reduction—the resolution of the object under observation into its component parts, here *vibgyor*,—

These three principles characterize the scientific mind.

You have also watched the same phenomenon. Let us presume you are more spiritual in your approach or 'Why' oriented. You focus on the cause of the

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phenomenon you are witnessing, which in this example, is the raindrop acting as a prism. The change in the refractive indices of the surrounding air and water in the rain drop, is the actual cause behind the refraction. You try to unearth the 'Why' of the matter, while leaving the 'How' to your scientific friend. By analyzing the raindrop you conclude that the phenomenon of the rainbow is an illusion of perception caused by the presence of moisture in the atmosphere. Now you have taken an



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overview or holistic view of the phenomenon while your friend has taken an atomistic view. Together you have arrived at the complete truth.

With the help of this example we can see that the same phenomenon can be interpreted in two ways. Asking the question 'how' reveals how things work and asking the question 'why' helps us understand why they work. 'How' focuses on the method or mechanism and 'Why' on the causes or core principles that prompt the method. Both reveal truths, both complement each other and both are links in the same chain leading to the Truth.

This is what happens in real life as well. Both religion and science are age old techniques that have been studying, analyzing and interpreting Life from time immemorial. Both are inspired by the same temper—finding the Truth. Both expend same amount of human energy.

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The difference lies in the method they adopt. Science which is more 'How' oriented, quantifies and studies life by reducing it to its building blocks, otherwise called atomism. For this the method it uses is purely objective. Spirituality on the other hand being 'Why' oriented, concentrates on the supreme interpreter of life—the human mind. For this its method has to be subjective. Just as by asking both 'How' and 'Why' we got a complete picture of the phenomenon of the rainbow, so also we need both science and religion for the complete elucidation of life.

Fortunately for us, in this blessed land of India, have been born great persons who have shown how the two disciplines share common areas of enquiry and how often their researches overlap. Prime among these sages was Swami Vivekananda. He was man of spiritual realization with a scientific bent of mind.

Revolutionary Steps

Vivekananda was the first person who stated that religion must also be subjected to the same methods of scrutiny that science is subjected to. He took Truth to be an experiential fact and not just a matter of faith. He also observed that there were many stages to the ultimate Truth. Traditional Vedanta gives only the ultimate Truth of Brahman—the status of Truth. The rest, according to it, is untruth or illusion. By acknowledging ‘lower truths’ Swamiji showed that Truth reveals itself variously and in stages and all these truths are on par with one’s mental development.

Swamiji also said, “We don’t travel from error to truth, but from a lower truth to a higher truth.” Thus, Swamiji’s philosophy gives thrust to the discovery and recognition of truths in all fields of human endeavor—art, science and religion. No ‘truth’ or law is wholly unreal, but it may

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be impermanent and limited to a particular frame. But 'degree' and 'frame' are matters of human convention. Thus Swamiji's perspective rejuvenates and does not negate any sphere of activity. The life-giving waters of his philosophy appease scientists, spiritualists, artists, philosophers, educationists and even atheists.

Finding parallels between science and traditional religion is difficult considering the wide variation in methods and dogmas. But finding parallels between science and Vivekananda's religion is easy. By religion Swamiji meant manifestation of divinity in oneself and the method to reach it can be just anything. Anything done intensely, intently, perfectly and with a spirit of dedication (which means without thinking of the fruits of actions) can bring out the power or divinity within. To express this divinity in one's daily life is to be religious according to Swamiji. Sister

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Nivedita states this very succinctly, "If the many and the One are the same reality... no distinction henceforth between the sacred and the secular. To labour is to pray, to conquer is to renounce. Life is itself religion." From this magnanimous standpoint, we can see that Spirituality minus the mumbo-jumbo of religion, is very much a science. It is universal, rational, verifiable and reasonable. By focusing on the subjective side of man, it complements the western objective approach to produce a total science of human possibilities.

Thus unifying threads that link Science with Religion already exist. Swamiji said, "In the light of the Vedanta, you will understand that all sciences are but manifestations of religion and so also is everything else." As if as a corollary, Einstein who was not just a great scientist but an original thinker once said, "Science can be created only by those who are

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thoroughly imbued with the aspiration towards truth and understanding. This source of feeling however, springs from the sphere of religion."

Vedanta stresses on unity at all levels of life—physical, mental, intellectual and spiritual. Swamiji is the modern interpreter who interpreted these truths in the modern idiom. And hence, he is the pioneer in this field of finding unity between science and spirituality. We will now focus on his pioneering thoughts in this regard.

Unity through Physics

Long before any unifying thread was visible in the realms of science and spirituality, Swamiji had emphatically declared, "Science is nothing but the finding of unity. As soon as science would reach perfect unity, it would stop from further progress, because it would reach the goal. Physics would stop when it

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would be able to fulfill its services in discovering one energy of which all others are but manifestations."

Infact, the relativity theory discovered only three years after Swamiji's passing away proved beyond doubt that matter was actually transformed energy. There is only one energy and everything else—matter, force in motion, and other forms of energy are but manifestations of that One energy. When Einstein discovered his famous equation $E=mc^2$, he acknowledged the contribution made by Vivekananda by saying, "there is one Kananda who predicted that matter and energy are interchangeable."

In the 19th century, science attempted to interpret life in bits and pieces. Even basic parameters like space, time, energy and matter were being studied as sparse, individual entities without inter-relatedness. It was Swami Vivekananda who had the first intuition that matter was

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nothing but energy concentrated. He sensed that the two were interconvertible. To put it in Swamiji's own words, "One peculiar attribute we find in time, space and causation is that they cannot exist independently. You cannot think of abstract space or time. They have no independent existence... but through them all things are manifesting." Swamiji said that this universe of matter and energy is but the Infinite or Absolute seen through the prism of space, time and causation. From this it can be deduced that the different parameters of basic physical science are not only inter-related but join to project the universe as we see it.

Another overlapping area of interest is quantum physics. The mere observation of sub-atomic particles is seen to radically modify them. Thus the observer or human consciousness plays a major role in any act of perception. This remotely resembles *drishti-srishti vada* or simultaneous

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drishti - srishti

creation. It is a system of Advaita philosophy propounded by a great Indian sage named Gaudapada. It says, the world is created when I see it! *Srishti* (creation) is due to *drishti* (perception). Just like the speculation in quantum physics – I am responsible for any act of perception!

Many scientists today admit that consciousness is the connecting link between science and religion. This is the basic theme of the Upanishads which

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Swamiji loved to state over and over again. As stated in the Kathopanishad, '*Manasaivedamaptavyam, neha nanasti kinchana*'—know this through the mind that there are no many. All is that One absolute Brahman, manifesting as many. But what type of mind gives this realisation? '*Manasa na manute*' says the Upanishad, not our normal type of distracted mind. A purified, pointed mind committed to truth is required for it alone is capable of revealing the substratum of existence. Knowledge strikes a mind that is committed to truth.

Unity in Biology—All Life is One?

The unifying thread in life-sciences is life energy or *Prana*. This word interestingly has no exact English equivalent. In the context of Darwin's theory of evolution of species, Swamiji made two very interesting clauses which indirectly explain the idea of *Prana*.

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1. Swamiji said, "Each evolution presupposes involution. The whole of this life which slowly manifests itself, evolves from the protoplasm to the perfect human being... the whole of manifestation must have been involved in that very protoplasm." This means life energy in all living beings is potent with life manifestation. The implications of this understanding are enormous. It means all life is one. One Prana manifests as bacterial life forms, protista, green plant life and the complex life machinery of animals. Life expressions are variegated and varied but life is basically one. Such a world view instils deep respect for the phenomenon of life.
2. Swamiji held that Darwin's theory of the 'survival of the fittest' applied only to lower forms of life and animal life. At the human level,

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evolution was not merely physical but psycho-social. And as such, competition and struggle was substituted by co-operation and symbiosis.

Thus the oneness of both life and consciousness has been realized and accepted in the realms of both science and spirituality. What scientists are arriving at through experimentation and enquiry, Swamiji arrived at the very same conclusions much earlier in time and much more assuredly through intuitive meditation.

Unity in Cosmology

Atom - Cosmos

The study of the cosmos gives the best picture of unity. During his travels Swamiji once meditated at a place called Kakri Ghat near Almora. There, after an hour of meditation under a huge peepul tree, Swamiji had a revelation. He said, "I have

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just passed through one of the greatest moments in my life. Here under the peepul tree one of the greatest problems of my life is solved. I have found the oneness of macrocosm with the microcosm. Here in this microcosm of the body, everything that is in the macrocosm exists. I have seen that the whole universe is within an atom. The macrocosm and the microcosm are built on the same plan." At all levels, micro and macro systems are united and work on the same principle. Deep down in the heart of an atom, the nucleus surrounded by empty space and whirling electrons, resembles the solar system with the central sun, large empty space and whirling planets.

What is body to human beings, is nature to cosmos. The universe functions as a single, harmonizing, self-organizing giant ecosystem.

Unity in Para-psychology

Today Para-psychology is one of the

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most interesting of sciences which is of common interest to both science and religion. It is the study of the human mind. What makes us think and communicate? How are we able to transmit knowledge to one another? How are emotions and thoughts resonated, and communicated, unless there is a common medium or common mind? This common medium or common mind is what Swamiji called the Universal mind.

Mind is one. All minds are parts of the universal mind. Imagine a radio tower radiating electromagnetic radiation of different wavelengths. You can tune your radio to any wavelength. Each wavelength gives you a particular station, so you can tune in to any station. Now the universal mind is the radio tower, our individual mind is the radio. We can tune in to any station. We can catch any wavelength or thought wave with our minds. Tuning in to the right wave length will bring us the

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right music. This is what education is about. True education inculcates the ability to catch the right thought waves.

In 1993, a neurophysiologist named Jacobo Grinberg and his collaborators in Mexico were trying to demonstrate quantum non-locality for two correlated brains. They wanted to find if thought can be transmitted, intention communicated. Two subjects were asked to meditate together to track signalless, non local communication. After twenty minutes they were separated into different Faraday chambers which would be electromagnetically impervious. Both their brains were wired to electroencephalogram (EEG) machines. One subject was shown a series of light flashes. The electrical activity in his brain was recorded in the EEG machine. From this an 'evoked potential' was extracted with the help of a computer. Very interestingly, in a short time, the other

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subject's EEG also showed a transferred potential similar in phase and strength to the evoked potential. This is because the thought of the light flash was consciously transferred by the first subject to the second. When other subjects were placed but the intention for thought transfer withheld, it was found that their EEG's recorded no transfer potential. In four such ground breaking experiments it was proved that brain responses are non-local and it is the intention that makes them unitive. It also gave objective proof for the non-locality and pervasiveness of quantum consciousness. This is perhaps the strongest scientific evidence available for unity at the para-psychological level.

Conclusion

On a piece of white cotton fabric a variety of patterns or designs can be embroidered—fruits, leaves, men, animals. So also, unity is the basic fabric of

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existence on which diversity seems to have been woven. The needlework is so attractive that we forget the underlying fabric. Modern science has shown unity at the level of building blocks, unity of physical and life energies, unity of mind and is investigating unity at the level of consciousness. Thus harmony and concord seem to be the theme of creation—one life, one mind and one consciousness. Matter and spirit have finally reached a common consensus.

Swamiji in the address delivered at Kumbakonam in 1897 gives us the perfect conclusion, "It seems to us and to all who care to know, that the conclusions of modern science are the very conclusions of the Vedanta reached ages ago; only in modern science, they are written in the language of matter."

ECHOES OF VEDANTA IN MODERN SCIENCE

Pravrajika Atandraprana

ECHOES OF VEDANTA IN MODERN SCIENCE

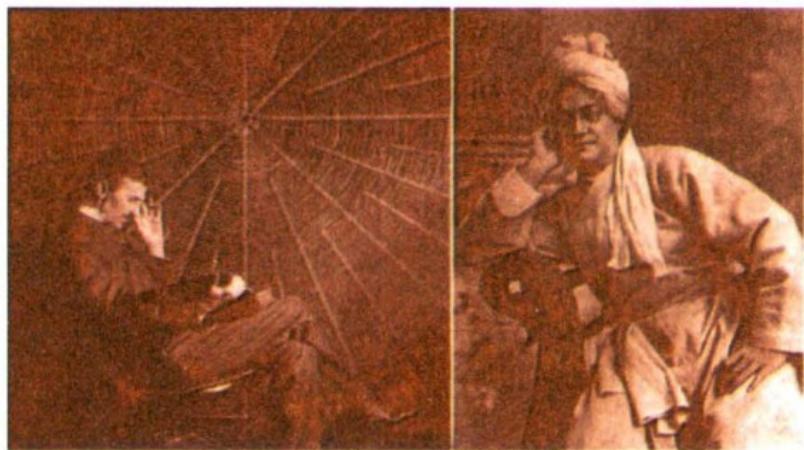
It was February 1896. Swami Vivekananda was at the laboratory of Nichola Tesla to get a mathematical proof. Earlier on February 13, Swamiji had written to Mr. Sturdy: *I am to go and see him (Tesla) next week, to get this new mathematic demonstration. In that case, Vedanta cosmology will be placed on the surest of foundations.* Tesla's fame was at its peak at that time. It was unthinkable that he would spare time for anything other than his research, least of all philosophy. *"He scarcely had time to eat a meal or go out of his laboratory."* However, he was irresistibly drawn towards Swamiji and had requested him to attend a demonstration in his laboratory.

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This was indeed a rare privilege. His spectacular demonstrations were the talk of the day. In his laboratory there were huge metallic balls that hung from the ceiling and he would stand in the dark wearing a grey or black coat. Suddenly the room would light up with an aura as he would allow a million volts of electricity to pass through his body and leap visibly from his out-stretched hands to light lamps, melt copper plates and explode metal discs. But all this left him unharmed due to the skin-effect of high alternating current. This is how he popularized the principles of electromagnetics and alternating current generators. He was an astounding inventor, who could run equations, methods, and machines back and forth in his mind.

Swamiji was his close friend. He was enthusiastic and confident about Tesla's capability to show that "*matter is reducible to potential energy.*" Swamiji was full of

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ideas about interconnectedness of science and Vedanta and even contemplated writing a book on it. He had approached Tesla to find proof about his concept and was greatly disappointed when Tesla could not give him the desired proof. Tesla was not willing to accept the limitation of his mathematical tool and laid the blame on Swamiji's philosophy. Much pained, Swamiji pondered whether this would be proven in the future. "*Modern science is mute here,*" was his sad comment. By the 1930s Tesla was an outdated and a forgotten scientist. Money from his patents

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got exhausted and he became bankrupt. But as he approached death there were evidences that he remembered his divine friend, and Swamiji's request, "*Can it not be shown that matter is convertible to energy?*" must have echoed in his ears.

"Mass is convertible to energy" had to wait a some more years to find expression when a young clerk by the name Albert Einstein, would put it mathematically as $E = mc^2$. The complete significance of what happens when matter is really converted to energy become clear to lay persons only after the devastating experience of Hiroshima-Nagasaki episode. The tremendous devastating capacity of the nuclear bomb blast was beyond any scientist's imagination. Astounded by his own creation, Openheimer had exclaimed, (as Vyasa expressed in Mahabharata) *divi surya sahesreshu bhavedyugapaduthita—a thousand suns rise up simultaneously in the sky.*"

Today's Science

Since the dawn of the nuclear age, the scientific world has witnessed a spate of discoveries that has brought about a major change in this field. Much of the rigidity and arrogance that science had exhibited at the end of the 19th century gradually disappeared. The foundation of the classical physics was shaken by quantum mechanics and the theory of relativity. It was as if the scientific tools were getting ready to explore Vedanta. It is interesting to note that from the 1970s even the mode of scientific thinking started changing. Formerly the attempt was to go to smaller and smaller "units" hoping to get to the fundamentals. Now, the scientists' attention was drawn towards the "whole". By the 1980s many eminent scientists in different fields, authority (precision-masters) in their own fields attempted to take a tremendous intuitive leap and landed in this new world of 'holistic

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science'. They looked at the entire universe as a whole instead of focussing only on its parts. For example, the human body was looked at as a whole entity instead of concentrating only on cells or parts. Moreover different fields within science started joining hands so that the research and principles discovered in one field could aid discoveries in other fields. The concepts of holistic science is very close to the teachings of Vedanta.

Mind and Brain

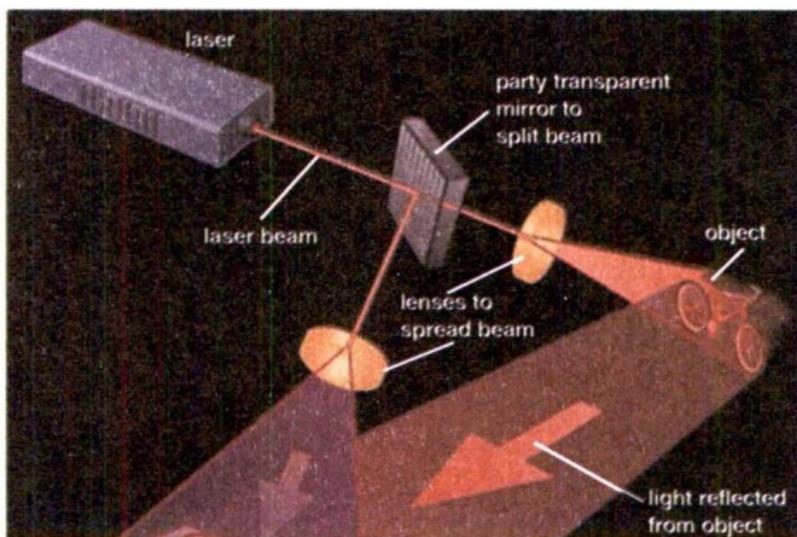
Wilder Penfield was a ground-breaking researcher who had worked extensively on the mysteries of the brain at the Montreal Neurological Institute. He enabled the scientific world to know and understand the multiple functions of the brain. He described memory as a card index file, the act of recollection was similar to taking out the correct card, and association stimulated memory. According to this

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theory, if some of the cards were destroyed there would be a corresponding destruction of the memory stored in those cards. Then came Karl Pribam, a veteran neurosurgeon and Director of Yerkes Laboratory, who along with his mentor Lashley, delivered a fatal blow to this theory. They found that even when 20% of the brain was removed there was no loss of memory. Memory becomes hazy but there would be no selective gaps. Memory somehow got delocalized in the brain. But they were unable to explain how this happened. It was only after Pribam came across an article on holography and laser technology, a totally different branch of science, that he could put forth a viable theory.

Every science student knows that a laser beam is a beam of light created artificially in a laboratory. Mutual resonance of waves keeps up the amplification and preserves the energy of

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the beam. The application of laser beam is wide ranging. From engineering to microsurgery, all fields have found use of it. In short, it is now the finest tool in human hands. In photography, ordinary light forms a two-dimensional image on photographic side and when we project the same, we get back two-dimensional images on the screen. In holography, a laser beam is split into two portions. The one thrown directly on the film is called 'reference beam'. The second portion of

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the beam, thrown directly on the object reflects back to meet the first portion on the film to produce an interference pattern, which is recorded as the image on the holographic slide. When this holographic slide is exposed to laser beam, it gives a precise replica of the object in all three dimensions. The interesting thing here is that the laser beam is a coherent wave and touches all parts of the slide, and thus, the entire information is encoded in every bit of the slide. So even if we cut the original slide into microscopic bits, each bit will reproduce the entire three-dimensional image: only the intensity and sharpness will decrease. The information encoding system and retrieval capacity of the brain is perfectly similar. This finally gave Pribam a theory to explain the results of his research on memory. Moreover, holographs can store many pictures on the same film. Any particular picture can be excited using appropriate stimulation. This

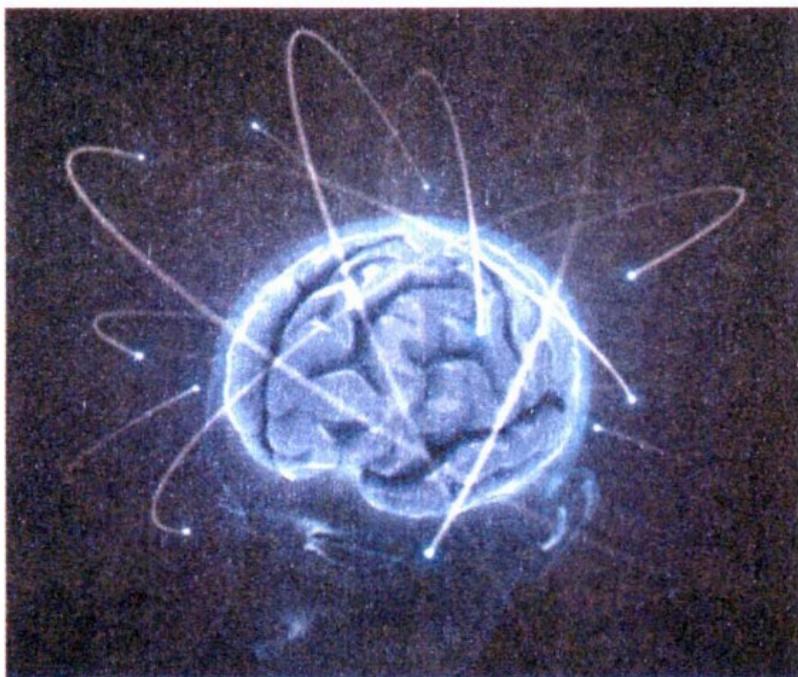
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can be compared with the process by which we recall particular incidents or events when associated words are heard. The important difference between the principles of holography and memory is that a holograph is a static mechanical interaction of pieces whereas in memory the holographic images are non-static (moving).

The Great Debate

Many scientists such as Illya Prigogine, Rupert Sheldrake and David Bohm working in different fields also came to similar results. However, the mystery of memory has not been fully solved. Science has not been able to establish the exact connection between the mind and brain. Prigogine and Jantsch accepted that mind was not limited to the chemistry of the brain. Bohm said, "mind is somehow implicated in that whole process and is not strictly localized in the brain... Mind is a

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subtle form of matter, matter is a grosser form of the mind." According to Sheldrake, mind was not in the brain and individual consciousness was connected to the morphogenic field of human consciousness which lay beyond space and matter which he called melanin. According to him mind was resistant to the usual chemical analysis; perhaps it acted like a holographic film or perhaps the mind was

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also holographic and used the brain as an instrument.

In Vedanta, we come across a term, *mahat* which is the origin of this vast world of objects including intellect, ego and mind. It is cosmic in nature. Simply put, it is the sum total of all inanimate objects and the intellect, ego and mind of all living beings. In Swamiji's words: "*What is called your mind is only a bit of this mahat caught in the trap of the brain and the sum total of all minds caught in the meshes of brains is what you call samasti, the aggregate, the Universal...* *Physiology is step by step conquering the stronghold of old religion, western people do not know where to stand, because to their great despair, modern physiology at every step has identified the mind with the brain. ...That is the first proposition the Hindu boy learns that mind is matter, only finer. ...The Atman uses the material mind as its instrument. The mind by means of a series of internal organs, works the visible organs of the body.*"

Part and Whole: Microcosm and Macrocosm

The concept that the mind works as a holograph led to further research and scientists arrived at the conclusion that not only the mind, but eyes and other organs were also holographic. The same principle was then applied externally. According to John Briggs and David Peat, "The transformations of the brain must mirror the transformations of the external world. In other words, the world must be a holograph. ...The movements of the whole are mirrored in each individual holographic brain." These results have given rise to a new outlook – information of this macroscopic world is encoded in every microscopic bit – implications of this relation between microcosm and macrocosm will assume astronomical proportions in science soon.

In Vedanta, microcosm and macrocosm are the terms given to an individual unit



and the universe respectively. Regarding the relation between the two, Swamiji had a deep spiritual experience wherein he found, "*The microcosm and macrocosm are built on the same plan. Just as the individual soul is encased in a living body, so is the Universal Soul, in the living prakriti (nature), the objective universe. Kali is embracing Shiva. This is not a fancy. This covering of the one (soul) by the other (nature) is analogous to the relation between an idea and the word expressing it. They are one and the same, and it is only by a mental abstraction that one can distinguish them. Thought is impossible*

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without words. Therefore in the beginning was the Word, etc." Thus he realized in the depths of meditation, the onenesss of the universe and man. Man is a universe in miniature. He realized that all that exists in the universe also exists in the body and further, that the whole universe exists in the atom. Elsewhere he elaborated this further, "*here we are, each one of us, as it were, a microcosm and the world taken altogether is the macrocosm. Whatever is in the vyasthi (individual), we may safely conjecture that a similar thing is happening also outside.* ...*The whole universe is simply an ocean of matter of which you and I are like little whirlpools. Masses of matter are coming into each whirlpool, taking the form and coming out as matter again—it is in a continuous state of flux. So with thought. It is an ocean of thought, one infinite mass, In which your mind and my mind are like whirlpools. ...The microcosm must bear testimony to the macrocosm and macrocosm to the microcosm.*" Vedanta does

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not merely state forth universal principles but also uses these principles to solve riddles of cosmic processes which have always fascinated and perplexed mankind. Swamiji explained that a person who has attained Samadhi can understand for himself how his mind dissolves and at that very moment he can also tell how the Cosmic mind dissolves and re-emerges.

Morphogenic Resonance

In physics, resonance means *beating in unison whenever the frequency matches with the frequency of external vibration*. Take a tuned musical instrument as an example. Singing or playing another instrument in a certain tune can produce similar vibrations in the musical instrument so that without actually playing it, it can respond with the same tune. In his book 'The Presence of the Past', Rupert Sheldrake applied this principle of physics in the field of biology. According to him, there are morphic life

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"Ultimately, the entire universe (with all its 'particles', including those constituting human beings, their laboratories, observing instruments, etc.) has to be understood as a single undivided whole, in which analysis into separately and independently existent parts has no fundamental status."

—David Bohm



fields which give creatures their form and movement. These fields are around every living object and they exert a formative influence on the growth of say a seed, an embryo, folding of protein molecules, growth of crystals, coordination between cells as well as molecules etc. The fields around two cells or molecules are responsible for their linking up and producing bigger forms. Thus each human being, who is made up of atoms, molecules, tissues, organs, and systems is composed of literally billions of fields all directed in an ascending interlocking order

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forming the general field that forms an individual. Sheldrake defined morphic resonance as the process by which the past was also present in the morphic fields. This means that these fields contain an inherent memory as a result of morphic resonance from all previous similar systems. Thus memory is cumulative and the field is evolutionary. For nonbelievers he cites the principles behind television as an example. If a man, who has never seen a television, is asked to guess how the pictures on the screen are formed, he will definitely open the box, examine the tubes and perhaps even break some of them to prove that they are responsible for the pictures. He will never believe, if you tell him, that electromagnetic field waves are causing the pictures!

Is there a 'Collective Memory'?

Sheldrake backed this theory with extensive research. Worldwide

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experiments are still going on to test morphic resonance. Let us look at some aspects and characteristics of morphic resonance. We find that memory is not only cumulative but there is also a collective memory field. For example, suppose one morning you find some wild purple orchids blossoming in your garden. If you go around the neighbourhood and in the nearby forest and you encounter the same type of flowers then you recognise them as purple orchids. Here a collective memory field for this particular variety of wild purple orchids is responsible for recognising these flowers. Moreover, there is also a transmission of causal influence through both space and time. In the 1930s 'Blue Tits' (a native bird of Britain) learnt how to rip open the caps of milk bottles and drink milk from them. Then during wartime, due to scarcity of glass, milk was not delivered in bottles. Once the war was over, after a lapse of around seven or eight

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years, milk was once again delivered in bottles. The Blue Tits started attacking the bottles almost immediately. Such a phenomenon was found worldwide. Similar results were obtained from experiments on monkeys. When a certain tribe of monkeys near Japan was given freshly dug out sweet potatoes, they were reluctant to eat them. One female monkey discovered that if the potatoes were washed they became edible. She taught this method slowly to few monkeys. Then

quite suddenly the behaviour pattern of all the monkeys changed and this method was universally adopted by them. It seemed as if the method learnt by few crossed a critical mass or a sort of threshold. Everyone started doing the same thing simultaneously not only on that island but other places as well crossing natural barriers. Another important characteristic is that fields themselves are formed by the very things they are form. He infers that the fields of the species yet to come are not already existing. They will come into existence along with the species.

How does Vedanta explain morphic resonance? As previously explained, the term given to this collective memory field is *mahat*. But *mahat* is still *prakriti*, i.e. nature, and thus it is not conscious. So it obeys the laws of nature, of which morphic resonance is one. Swamiji gives this principle to explain why the thoughts

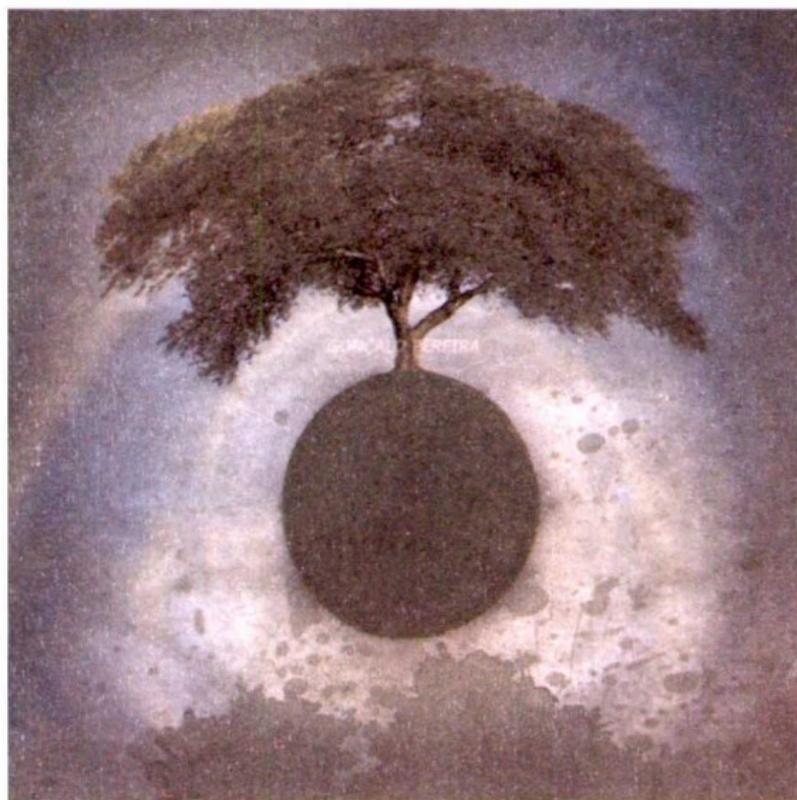
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of good people beat in unison and so good tends to become better, and thoughts of the bad people get worse. In his words, "*suppose I am doing an evil act, my mind is in a certain state and all minds in the universe which are in a similar state have the possibility of being affected by the vibration of my mind. So, when I am doing a good action...*" This was not a mere theory he put forth, it was actually realized and manifested in his life. One day Swamiji was discussing Shankara's viewpoint on some intricate problems. He started quoting from largely inaccessible texts of Shankara with ease. One of the listeners wondered how Swamiji could be so familiar with all such texts. Swamiji said, "If I meditate on the brain of Shankara, I become a Shankara; if I meditate on the brain of Buddha, I become a Buddha." He meant that he received their thoughts directly and did not have to go through the usual method of reading books.

Self Organising Universe

Without touching the theory of co-evolution and self-organising universe of Dr. Jantsch and others, this discussion would be incomplete. Presently a group of scientists are debating whether the entire universe is coordinated at different levels. According to Whitehead, "The universe confronts us with this obvious but far-reaching fact. It is not mere confusion, but is arranged... in a series of discrete 'levels' which for precision we call a hierarchy of whole and parts." It is a system of systems. The phenomenon of co-evolution is often explained with the example of Cyanobacteria. Two aeons ago cyanobacteria had released toxic oxygen into atmosphere thus poisoning and threatening to destroy the entire existing biosphere. But the macrosystem, which is the planet earth, remodeled the entire biosphere and readjusted itself to the activity of this microsystem, the

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cyanobacteria. Higher and complex life came into existence consuming the toxic oxygen. In this way, by natural feedback the macrosystem and the microsystem evolved together.

In this context we also need to look at James Lovelock's Gaia hypothesis (Greek word meaning eastern goddess). In this

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hypothesis, Lovelock postulated that biosphere was a self-regulating entity. It was a life-form created by all this interlinking approximately four billion species. Co-evolution was coordinated in such a way that our planet became an autopoietic structure. Lewis Thomas on the other hand called this earth a giant single cell. Just as in our body different cells and tissues get coordinated, the entire earth system is also made up of innumerable microsystems, which act like a single coordinating system. This hypothesis was further extended to encompass the entire universe. Nobel laureate, McClintok took the Gaia Hypothesis a step further by providing a logical theory called the theory of symbiosis based on observed facts. Margulis, a collaborator of McClintok, was not comfortable with the religious overtones of the Gaia system whereas Lovelock was quite enthusiastic about

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their findings. He said that Lovelock and McClintok were the first to form a scientific religion. We wonder whether it is really so!

Super-string Theory

As discussed earlier, according to this new approach, the world or the entire universe is looked at as a whole instead of parts. For example, the human body is looked at as a whole instead of looking at just as cells or parts of the body. Moreover different fields within science, as mentioned earlier, are joining hands so that the research and principles discovered in one field are aiding discoveries in other fields. The concepts of Holistic science arrives at are very close to Vedanta. Another interesting thing towards this direction is that, physicists are on way to find a single, elegant set of laws describing all the fundamental forces of nature. Since Einstein's time scientists have made

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important progress. Experiments using particle accelerators have led to new mathematical rules, which cover both electromagnetic forces and the nuclear forces that shape the cores of atoms. These rules leave much to be explained, but they do predict almost everything about the elementary behaviour of material particles, except gravity. But so far nobody has found a way to fit Einstein's curved space together with the wholly different quantum approach that works for electromagnetic and nuclear forces. Recently, some physicists have proposed a third approach: 'string theory.' They picture fundamental particles as tiny loops, which vibrate like violin strings in a multi-dimensional space. Surprisingly, gravitation emerges from these equations as a natural by-product. However, they have not found a way to test the string theory and come to a conclusion. Recent discovery of Higgs boson with the help of

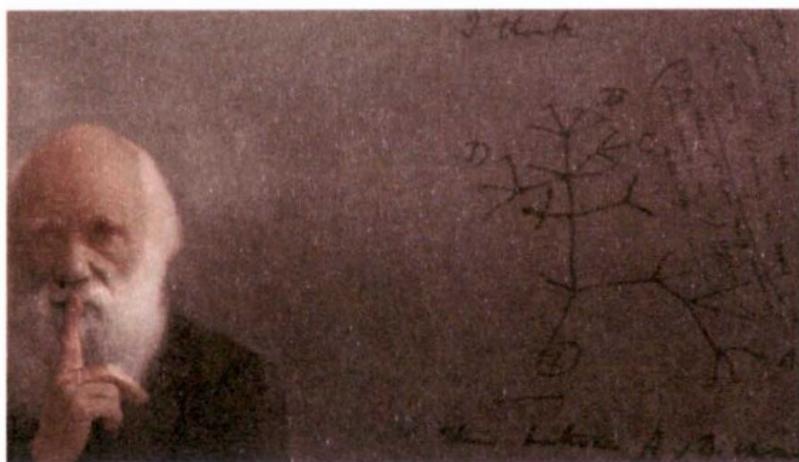
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Large Hadron Collider experiment has taken the theory to much closer steps. Unless that final link is established the theory will remain only as a hopeful curiosity. The string theory is akin to Prana and its vibration as conceived by Swamiji. What is Pràna? Vivekananda answers: "*Pràna is Spandana or vibration. 'Pràna means force [energy]—all that is manifesting itself as movement or possible movement, force, or attraction... Electricity, magnetism, all the movements in the body, all [the movements] in the mind—all these are various manifestations of one thing called Pràna.*" (C.W.S.V., Vol. 1, p. 503)

Holistic Science

Swamiji's rich legacy in the highly-specialised field of science has been astounding. Right from childhood he never accepted anything based on mere faith. He wanted proof for everything from common superstitions to the ultimate

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Reality. His intrinsic rational and no nonsense attitude enabled him to speak to the western audience in a scientific language. However, he was not a blind follower of science. He did not have scientific superstition nor did he look for a slippery scientific explanation for every Hindu custom. He had this to say about scientific superstition: "*In modern times if a man quotes a Moses or a Buddha or a Christ, he is laughed at, but let him give the name of a Huxley or a Tyndall or a Darwin, and it is swallowed without salt. 'Huxley has said it' that is enough for many. We are free from*

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superstitions indeed! That was a religious superstition and this is a scientific superstition." Elsewhere he said, "There is another class of men among us who are intent upon giving some slippery scientific explanations for any and every Hindu custom, rite etc... However, Mother bless them all."

Nevertheless his interest and respect for science was immense. He readily offered Vedic cosmological principles for scientific analysis. He had great confidence in the rationality of Vedanta. He said, "It seems clear that the conclusions of modern science can be acceptable harmoniously with their religion only to Vedantins. It seems clear that materialism can hold its own and at the same time approach spirituality by taking up the conclusions of Vedanta. ...Modern science and its sledge hammer blows are pulverizing the porcelain foundation of all dualistic religions everywhere. ...Preach Advaita to everyone so that religions may withstand the shock of modern science. ...From the high spiritual

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flights of Vedanta philosophy of which the latest discoveries of science seem like echoes." The future alone will assess his efforts to make the intricate Indian philosophy appealing and palatable to the scientific minds for the first time in history.

MARVELLOUS MARCH TO THE PINNACLE OF GLORY

Dr T.G.K. Murthy

MARVELLOUS MARCH TO THE PINNACLE OF GLORY

A Pervasive Renaissance Ahead

India has a long and impressive history and a very rich cultural tradition. Our great thinkers had plunged into life, into the heart of experience, and gave us the Vedantic vision that encompassed all other forms of knowledge. But, for centuries, we failed to appreciate these visions and incorporate them in our lives. We became stagnant in our search; and in that stagnation, we leaned towards modern Western scientific culture. However, after over a century, our society is now experiencing a tremendous awakening, a pervasive renaissance, in the course of which we have started

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reassessing our own inherited values and comparing them with the values which we received from the west. How did this awakening come about? Who beckoned us to follow this path?

Swami Vivekananda - The Beacon Light

Swami Vivekananda was the first person who dared to subject Vedanta to the scrutiny of the western scientific method and thereby infused Vedantic knowledge into western scientific minds breathing freshness into the modern era. Today, he stands as the guiding light for humankind in general and for India in particular, who are mired either in the misconception of their own national tradition, or blinded by the achievements of the Western science. Swamiji harmonised the finest excellences of both the East and the West, through synthesis of inner and outer science of man, and

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demonstrated to the world and specially to our nation that this modern transition in India can be made purposive and fruitful, and India can become a torch-bearer in the

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modern times, if the Indian child is given the guidance to understand the dynamic nature of the modern transition in India and to assimilate these two elements in his or her character. Every Indian citizen today must strive to achieve this synthesis in a measure in himself or herself. Vivekananda exhorts every Indian to strive in this direction. Swami Vivekananda outclassed himself as a socialist, moderniser, progressive reformer, champion of women, an icon of youth and downtrodden, upholder and rejuvenator of *Sanatana Dharma*, Vedantist par excellence, nationalist, saint and prophet, artist, manager, organizer and a born leader all rolled into one. It is a wonder as to how he could achieve such exceptional qualities and demonstrate them in his extraordinary life. He had an exceptional intelligence, prodigious memory and a thoroughly rational mind. These inherent natural qualities were nurtured by his own self-

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effort and under the tutelage of Ramakrishna Paramahansa, his great Guru, he was to become an integrated personality of human excellence. Today, innumerable individuals, institutions, organizations working in multitude of areas bear the name of Swamiji and follow his ideals with him as their role model. What are these paths that he chalked out for us to tread in order to reach the peaks of human glory?

The Four Luminous Paths

The studies of the complete works of Swami Vivekananda reveal that he had laid out four paths that beckoned humanity to march towards the bright worlds of excellence. Understanding of these paths would help humanity to move towards this enlightenment.

THE POWER OF QUESTIONING

Every child is born with an innate

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curiosity and questions everything that he/she encounters in life. The edifice of knowledge is built as a result of this questioning trait. However, as the child grows, generally in most cases, he/she loses this questioning ability, and as a result, he/she is denied the real source of knowledge and excellence. Swamiji retained this extraordinary quality throughout his life. If we turn towards our heritage we find that Vedanta fundamentally empowers each person to question without fear and find the truth wherever it may be found, based on rational thinking taking nothing on faith. Throughout the Upanishads we come across many serious dialogues, questions and answers between a teacher and a student. The most striking examples of these are the probing dialogues between Nachiketa and his father Uddhalaka, Nachiketa and Yamadharmaraja, Uddhalaka and Svetaketu, and between

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Maitreyi and Yagnavalkya. These dialogues are highly rational and follow the tenets of modern scientific investigations of acquiring knowledge.

In this context when we examine Swamiji's life we find that he never lost this questioning ability. The young Naren, who later came to be known as Swami Vivekananda belonged to the chain of Vedantic luminaries who emphasized the need for questioning to unravel the truth. It is this questioning mind that took Naren to seek out Sri Ramakrishna in November 1881, which proved to be a turning point in Narendra's life. Narendra said about this first meeting that "*Ramakrishna looked just like an ordinary man, with nothing remarkable about him. He used the simplest language and I thought, 'Can this man be a great teacher?' I crept near to him and asked him the question which I had been asking others all my life: 'Have you seen God, Sir?'* 'Yes', he replied. '*Can you prove it,*

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Sir?' 'Yes'. How? 'Because I see Him just as I see you here, only in a much intense sense.' That impressed me at once." This rational temper he retained all his life. He embedded it in his famous lectures delivered in different western countries. He could tackle most of the questions that western-educated minds raised. It is also the reason why most scientific-minded people are able to connect with Swamiji's incisive intellect through his famous writings. Even a century after he delivered his fiery speeches, readers are shaken by his thoughts and marvel at his ability to explain the Hindu legacy to a western mind. Swami Vivekananda's summaries of Hinduism are one of the most logical and scientifically rendered pieces in modern times in English. The spirit behind all of his writings is to encourage a questioning mind. Vivekananda himself encourages the reader to challenge all his postulates and

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he would not be perturbed if the reader were to conclude that Swamiji was wrong. Swami Vivekananda told his vast audiences, "*Do not believe a thing because you read it in a book! Do not believe a thing because another has said it is so! Find out the truth for yourself! That is realisation!*"

Similar views are seen when we consider the works of great thinkers like Einstein, Feynman, and Newton. In them, we find not just the unfathomable genius but rather the thinker who placed deep and fundamental questions at the heart of his work and pursued it passionately. The entire edifice of science is built on this rationality and questioning and of course one needs to be careful about scientism that is prevalent today and perhaps true scientists should question these pseudo scientists before rising their finger towards other forms of acquisition of knowledge.

SYNTHESIS BETWEEN SCIENCE AND RELIGION

Like a true scientist, after gaining sufficient knowledge of the Upanishads, western philosophy and insights into the then modern science, Vivekananda longed to gain a practical verification of the Vedantic truths through his own inward journey. So far he had experienced the Vedantic truths on several occasions at peripheral level. He experienced the fountain head of the Vedantic knowledge towards the terminal phase of the physical life of Sri Ramakrishna. In the words of Swami Vivekananda: "*One day in the Cossipore garden, I had expressed my prayer to Sri Ramakrishna with great earnestness. Then in the evening, at the hour of meditation, I lost the consciousness of the body, and felt that it was absolutely non-existent. I felt that the sun, moon, space, time, ether, and all had been reduced to a homogeneous mass and then melted far away into the unknown; the body-*

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consciousness had almost vanished, and I had nearly merged in the Supreme. But I had just a trace of the feeling of Ego, so I could again return to the world of relativity from the Samadhi. In this state of Samadhi all the difference between "I" and the "Brahman" goes away, everything is reduced into unity, like the waters of the Infinite Ocean — water everywhere, nothing else exists — language and thought, all fail there. Then only is the state "beyond mind and speech" realized in its actuality. Otherwise, so long as the religious aspirant thinks or says, "I am the Brahman" — "I" and "the Brahman", these two entities persist — there is the involved semblance of duality. After that experience, even after trying repeatedly, I failed to bring back the state of Samadhi. On informing Shri Ramakrishna about it, he said, "If you remain day and night in that state, the work of the Divine Mother will not be accomplished; therefore you won't be able to induce that state again; when your work is finished, it will come again." (Complete

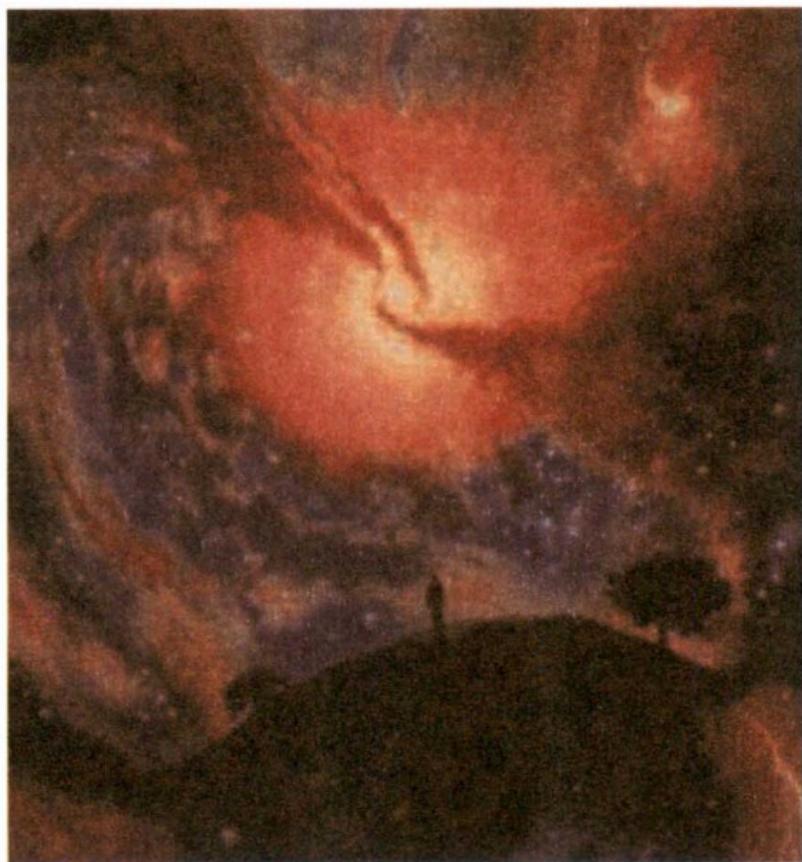
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Works of Swami Vivekananda, Vol.-7, pp.139-40). Such vivid and graphic descriptions of the Vedantic truth are rare in the annals of history, but they corroborate with the experience of other spiritual luminaries like Sri Ramakrishna, other prophets and theologians.

After experiencing this cosmic oneness inwardly, Vivekananda's mind turned towards the hidden truths of the external world. During his historic sojourn in the West he, on several platforms, declared that oneness governed all the natural sciences such as physics, chemistry, biology and cosmology. His prescience was unknown and unthinkable to the great scientists of that time. With the advancement of science in the last one hundred and twenty five years in each of these fields his prescience has been vindicated by the work of several scientists, including some Nobel Laureates. Penetrating into ever deeper

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realms of matter and spirit, he had become aware of the essential unity of all things and events. Moreover, he had also learnt that he and his consciousness were an integral part of this unit. It can be said that Vedanta seen through Vivekananda is the latest modern science.



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How was he able to achieve this wonderful feat? He was at core an Advaitin, a Vedantist. The philosophy of Vedanta was built systematically during the Upanishadic period in ancient India through *sravana, manana* and *nidhidhyasana*. In modern terminology they can be termed as *receive, recall and reconstruct*. This ancient wisdom was adopted by Swamiji and augmented with the prevalent western education. He received the knowledge of oneness from Sri Ramakrishna through *sravana*, contemplated (*manana*) on it in his mind, arrived at the absolute truth behind the external and internal universe outside of man (*nidhidhyasana*). He applied this knowledge with equal ease to reach both the absolute truth (Vedanta) and the relative phenomenal truth (science). This is exactly how he was able to synthesize Vedanta and science. He found the grandeur of Vedantic knowledge and exhorted the west to look towards Vedanta

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with open but incisive mind to find solutions to their nagging problems in all domains of pursuit.

MASTERING THE MIND

Swami Vivekananda's was a unique personality unparalleled in the history of mankind. His success was due to mastery of his mind. He exhorted every one to gain control of one's mind to such an extent that at one moment one should be able to plunge into deep meditation and merge with universal mind, and the next moment one should be able to switch over the mind and come down to ground level so as to plough the field. With such a mastery over mind one would be able to rise from the animal instinct to become a rational man and go to on develop an intuitive divine personality. What is the scientific rationale behind this?

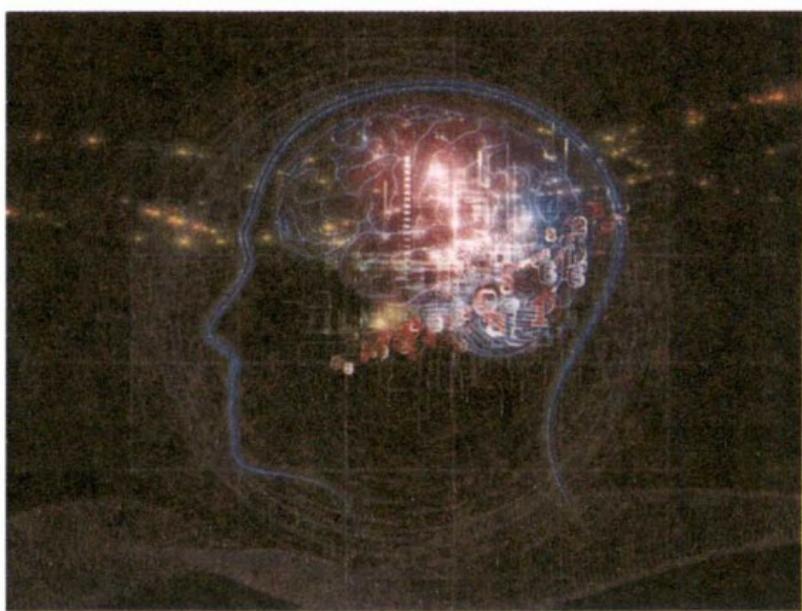
Neurologist Roger Sperry won the 1981 Nobel Prize for physiology for

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demonstrating the distinct but complementary roles played by the right and left hemispheres of an adult brain. The work on humans allowed investigators to compare cognitive abilities of the two separate brain halves, demonstrating differences unrecognized so far. The left brain half, for example, was found to be superior to the right one in tasks involving analytical, sequential, and linguistic processing; the right showed superior performance in holistic, parallel, and spatial abilities. He elucidated the unique capabilities of each hemisphere and demonstrated that the combined effect of bi-hemispheric activity amounted to more than the simple additive effects of the two separate hemispheres.

This new paradigm throws a new light on the way we look at life. It ascertains that the world we live in is driven not solely by the mindless physical forces but, more crucially, by subjective human

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values. Human excellence (values) becomes the underlying key to the understanding of the world order. In almost all cases (99.99 percent) people are either left or right brain dominated. Swami Vivekananda was an exception, because he was able to synthesise and operate the full capacity of his brain. He attained complete control over his mind through unparalleled concentration. He said, "*Now this knowledge again is inherent in man. No*

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knowledge comes from outside; it is all inside. All knowledge that the world has ever received comes from the mind; the infinite library of the universe is in your own mind. The external world is simply the suggestion, the occasion, which sets you to study your own mind, but the object of your study is always your own mind. All knowledge therefore, secular or spiritual is in the human mind."

According to him, "Concentration is the essence of all knowledge. It has to be developed through practice. Ninety percent of the thought force is wasted by the ordinary human being in constantly committing blunders. The trained mind or man can never make mistakes." This aptly applies to all domains of human activity and science is not an exception. He further added that "the world is ready to give up its secrets if we only know how to knock, how to give it the necessary blow." "The strength and force of the blow comes through concentration. There is no limit to the power of the human mind. The more

concentrated it is, the more power is brought to bear on the point."

EXCELLENCE WITH COMPASSION

The final path that Swami Vivekananda strode was one where excellence was infused with compassion. He was remarkably successful in taking Vedanta to the West. It rejuvenated their personal and scientific way of life. After his master's passing away, Vivekananda set out on a pilgrimage to the shrines of the living God. His master had asked him to become a huge banyan tree, under whose shade weary souls would gather in search of peace and solace. No one saw India and India's masses as Vivekananda saw them. What he saw made him restless and his lofty mind came down from the height of transcendental consciousness to the misery of the world around him. He saw the land of the all-pervading Brahman filled with cries of sorrow and suffering. It deeply

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pained him to see the living God that Vedanta glorifies and which resides in every human being was being neglected, insulted, and trampled upon. The people of this holy land having been subjected to centuries of invasions and foreign rule, had been beaten into submission. Their pitiable poverty had made them deaf to the song of the soul that was being sung within. The lion-hearted Vivekananda roared in agony and frustration. He became restless and searched for a way to put an end to this misery and neglect of the living Gods. He decided to awaken the masses by sounding the thundering drumbeats of Vedanta. He found people in India believing in superstitions in the name of Vedanta. Just as moss growing over hides a stone, proliferation of dogmas, creeds, rituals, and theological speculations concealed the real teachings of Vedanta. The true essence of Vedanta was lost in a maze of collection of mindless

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rituals and intellectual jugglery. Vivekananda found India in a deep spiritual coma. He looked to the West and realised that India needed the Western vigor, manliness, and virility to be able to live the life prescribed in the Vedanta because Vedanta was not for the weak and the famished. He wanted to get rid of all old associations and wished to infuse some of the American spirit into India and then start an entirely new, simple, strong, new and fresh life as the first-born baby. Swamiji accordingly directed the Indian society to subject Vedanta to scientific investigations and act accordingly. "*To put the Hindu ideas into English and then make out of dry philosophy and intricate mythology and queer startling psychology, a religion which shall be easy, simple, popular, and at the same time meet the requirements of the highest minds—is a task only those can understand who have attempted it.*"

Vivekananda's aims were clear. He said,

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"The abstract Advaita must become living—poetic—in everyday life; out of hopelessly intricate mythology must come concrete moral forms; and out of bewildering Yogi-ism must come the most scientific and practical psychology—and all this must be put in a form so that a child may grasp it. That is my life's work." It does not mean all western approaches were suitable for India. The West had its pitfalls of free society with associated greed and lust. Swamiji envisioned the synthesis of the best of the East and the West to uplift humanity in general and Indians in particular. Towards fulfillment of this goal, he foresaw the compelling need for establishment of institutions of knowledge that would have an outer shell of western science and an inner core of values of Vedanta. He was responsible for the establishment of the Indian Institute of Science and Tata Institute of Fundamental Research. In fact, Swamiji had been offered the first

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directorship of the Institute by Jamsetji Tata for bringing a kinship between eastern-western knowledge. Swamiji established Sri Ramakrishna Math and Mission, and envisioned the establishment of Sri Sarada Math, with the unique motto of 'Liberation of Self and Service to Man'. When these institutions were established such a concept was unheard of. Today all scientific, secular and spiritual organisations have veered around this new idea of man making. Swamiji emphasised the need to have passion to excel in one's chosen field but he also stressed that this passion had to be fundamentally tempered with compassion. In fact, he denounced the singularity of any passion. The combination of these two complementary disciplines in the life of man, he believed would produce a fully integrated human being. This would result in the evolution of a complete human civilization, for which the world is ripe and waiting. This

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is the most outstanding contribution of Swami Vivekananda to human thought today.

Establishing a Legacy

Today, we stand at the cross road of conflicting paths of materialism and spiritualism. We are confused about our goals in life. We have become cynical about life and often often tend to adopt the sheep-herd mentality. We are not able to guide our youth and all around we find spiritual depravity. At such a time we need to turn to Swami Vivekananda because he knew the way, he had walked the way and showed the way for excelling in any field. He has left us the legacy of human excellence. He strongly believed that every person is born with a particular nature that needs to be nurtured and nourished in order for that person to excel. In order to regain the pristine glory of man as envisioned by Swami Vivekananda, which

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is most relevant today, we need to reorient the mindset and rejuvenate the mind on the lines of Swamiji's loving and caring advices. It should be emphasized that any of the four paths cited above will be enough to take us to our cherished goal. But if we are able to follow all the four paths, we will be the master-makers of our life. This is the legacy Vivekananda has left to future generations.



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MARVELLOUS MARCH TO THE PINNACLE OF GLORY

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gratefully acknowledged for their kind permission to reproduce them here.

1. John Henry Wright edited Collignon's *Manual of Greek Archeology* (English translation, 1886) and *A History of All Nations* (24 Volumes, 1902). He was associate editor (1888-1906) of the *Classical Review*, editor-in-chief (1897-1906) of the *American Journal of Archeology*, and associate editor (1908-1908) of the *Classical Quarterly*.
Relationship with Vivekananda. In 1983 Wright sponsored the Indian Sage Vivekananda when the latter came to America; he remained a friend of the guru throughout his life.
2. Richard Phillips Feynman (May 11, 1918—February 15, 1988) was an American theoretical physicist known for his work in the path integral formulation of quantum mechanics, the theory of quantu, electrodynamics and the physics

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of the super fluidity of super cooled liquid helium, as well as in particle physics (he proposed the parton model). For his contributions to the development of quantum electrodynamics, Feynman, jointly with Julian Schwinger and Sin-Itiro Tomonaga, received the Nobel Prize in Physics in 1965.

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"It seems clear that the conclusions of modern science can be acceptable harmoniously with their religion only to Vedantins... Modern science and its sledge hammer blows are pulverizing the porcelain foundation of all dualistic religions everywhere. ...Preach Advaita to everyone so that religions may withstand the shock of modern science. ...From the high spiritual flights of Vedanta philosophy of which the latest discoveries of science seem like echoes."

